COMPUTER NETWORKS (BCSC 0008)

Lecture 21

Text and Reference Books

Text Books:

1. Fourouzan B. A. (2004), "Data Communication and Networking", 4th Edition, McGraw-Hill.
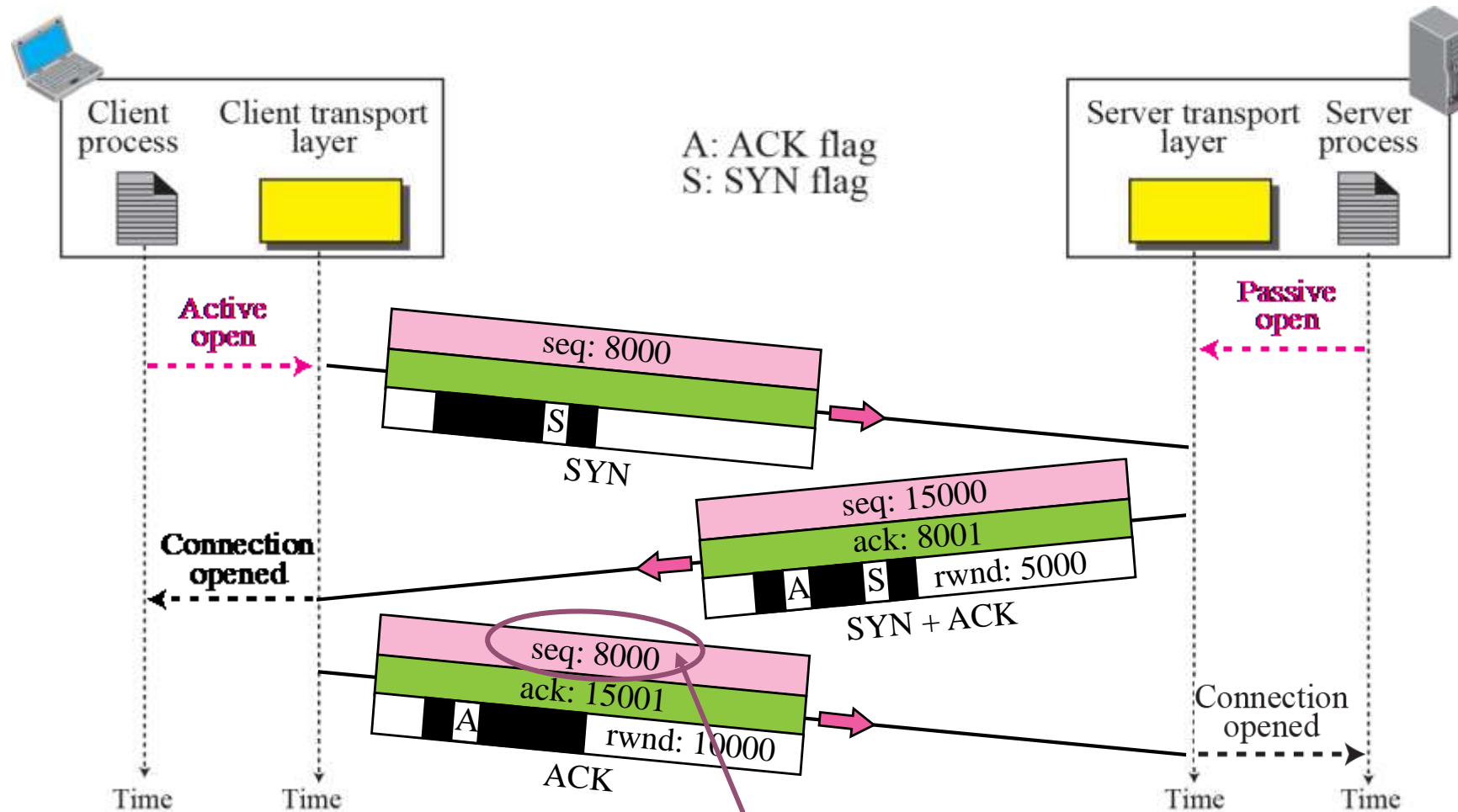
References:

1. Kurose, J. F. and Ross K. W. (2005), "Computer Networking: A Top-Down Approach Featuring the Internet", 3rd Edition, Addison-Wesley.

2. A. S. Tanenbaum (2006), "Computer Networks", 2nd Edition, Prentice Hall India.

15-4 A TCP CONNECTION

TCP is connection-oriented. It establishes a virtual path between the source and destination. All of the segments belonging to a message are then sent over this virtual path. You may wonder how TCP, which uses the services of IP, a connectionless protocol, can be connection-oriented. The point is that a TCP connection is virtual, not physical. TCP operates at a higher level. TCP uses the services of IP to deliver individual segments to the receiver, but it controls the connection itself. If a segment is lost or corrupted, it is retransmitted.

Figure 15.9 Connection establishment using three-way handshake

A: ACK flag
S: SYN flag

Figure 15.10   Data Transfer

Pushing data
Urgent data

Connection termination using three-way handshaking

A: ACK flag
F: FIN flag

Client

Server

Active close

seq: x
ack: y

A   F

FIN

seq: y
ack: x + 1

A   F

FIN + ACK

Passive close

seq: x
ack: y + 1

A

ACK

Time

Time